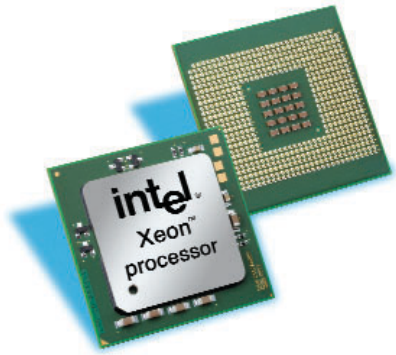
Intel® Xeon™ Processor and Low Voltage Intel® Xeon™ Processor with 800 MHz System Bus for Embedded Computing

Product Overview

The Intel® Xeon™ processor with 800 MHz system bus at 3.2 GHz and the Low Voltage Intel® Xeon™ processor with 800 MHz system bus at 2.8 GHz provide an excellent solution for applications in the communications market segment that require very high levels of processing performance. A 1M Advanced Transfer Level 2 (L2) Cache, along with the Intel® E7520 chipset, creates a balanced platform designed to deliver unparalleled price-performance, scalability, and flexibility. Intel Xeon processor-based products demonstrate compelling value in specific applications like Web-serving, storage (NAS, SAN), search engines, telecommunications servers, network management, security, voice, and load balancing.

Product Highlights

- Intel® Extended Memory 64 Technology (Intel® EM64T)
- Intel NetBurst® microarchitecture delivers new levels of performance and throughput
- Hyper-Threading Technology (HT Technology) enables a single physical processor to execute two separate code streams (called threads) simultaneously
- Intel Xeon processor with 800 MHz system bus at 3.2 GHz
- Low Voltage Intel Xeon processor with 800 MHz system bus at 2.8 GHz
- Validated with the Intel E7520 chipset for high memory bandwidth, high memory capacity, and high I/O bandwidth
- 1M Advanced Transfer Level 2 (L2) Cache tightly synchronized with the L1 cache and Rapid Execution Engine, improving access times for data



- Execution Trace Level 1 (L1) Cache improves throughput and reduces latency
- Rapid Execution Engine provides 2x clock speed for integer computations
- Internet Streaming SIMD Extensions 3 (SSE3) provides better multimedia and encryption/decryption processing, along with support for more computationally intensive graphics
- Extended life cycle support

Intel NetBurst® Microarchitecture

As the foundation for the Intel Xeon processor with 800 MHz system bus and the Low Voltage Intel Xeon processor with 800 MHz system bus, Intel NetBurst microarchitecture offers several innovations that allow it to deliver best-in-class performance in dual-processor configurations. This microarchitecture features higher clock

speeds, a Rapid Execution Engine, and an Execution Trace Cache. These features are incorporated specifically to increase performance and throughput on current applications and build headroom to meet current and future performance needs as business and workloads grow. Specific microarchitecture benefits include:

- Higher clock speeds with future headroom: Faster raw execution provides higher transaction rates and faster response times
- Rapid Execution Engine: 2x clock speed for Arithmetic Logic Units (ALUs) operations gives increased performance to compute servers
- Trace Cache: Faster instruction throughput and improved performance by removing decoder latency

Hyper-Threading Technology

With immediate performance benefits for embedded computing applications going beyond 1 GHz (processor core frequency), Intel is changing the landscape of processor design and performance by including simultaneous multi-threading on a processor. Intel's groundbreaking HT Technology, a new on-processor innovation, allows multi-processing applications to execute more than one thread per processor, increasing the throughput of applications and enabling processing to scale to handle future workload requirements.

Intel® Extended Memory 64 Technology (Intel® EM64T)

Intel EM64T is one of a number of innovations being added to Intel's DP Server/Workstation platforms. It represents a natural addition to Intel's IA-32 architecture, allowing platforms to access larger amounts of memory. For example, utilizing Intel EM64T and a 64-bit operating system, a LINPACK 30k solution set can be achieved. Without Intel EM64T, LINPACK is limited to a 15k solution set in a 32-bit operating system environment. Processors with Intel EM64T will support 32-bit or 64-bit running on extended operating systems from Microsoft, Red Hat*, and SuSE*. Processors running in legacy† mode remain fully compatible with today's existing 32-bit applications and operating systems.

Additional information for Intel EM64T can be found at developer.intel.com/technology/64bitextensions

† Legacy mode is where a 32-bit application is running under a 32-bit operating system.

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Product Number	Core Speed (GHz)	External Bus Speed (MHz)	L2 Cache	Thermal Design Power	VID Range	Tcase[1]	Package
RK80546KG0881M	3.2	800	1M	103W	1.2875 – 1.4 V	–	604-pin FC-µPGA4
RK80546KG0721M	2.8	800	1M	55W	1.1125 – 1.2 V	–	604-pin FC-µPGA4

1. For Tcase figures, please consult the Intel® Xeon™ processor with 800 MHz system bus datasheet and Low Voltage Intel Xeon processor with 800 MHz system bus datasheet, which are available online at http://developer.intel.com/design/xeon/documentation.htm

Intel Access

Developer's Site:	developer.intel.com
Embedded Intel® Architecture Home Page:	developer.intel.com/design/intarch
Intel® Technical Documentation Center:	www.intel.com/go/techdoc (800) 548-4725 7 a.m. to 7 p.m. CST (U.S. and Canada) International locations please contact your local sales office.
General Information Hotline:	(800) 628-8686 or (916) 356-3104 5 a.m. to 5 p.m. PST

For more information, visit the Intel Web site at: **developer.intel.com**

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